



Working Papers in Educational Linguistics (WPEL)

Volume 20
Number 2 *Spring 2005*

Article 4

4-1-2005

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L2 English Morpheme Acquisition Order: The Lack of Consensus Examined from a Case Study of Four L1 Chinese Pre-school Boys

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General consensus seems to exist about the L1 English morpheme acquisition order among native speakers. Conversely the same kind of concurrence is not found for L2 English morpheme acquisition. This may be due to a lack of consistency in the methodology used to measure acquisition. This article examines the morpheme acquisition order of four Chinese-speaking pre-school boys to demonstrate that certain criteria for measuring morpheme acquisition are more illustrative than others. This in turn affects the usefulness of a particular criterion in evaluating morpheme acquisition that affect methodological consistency necessary to make a comparison. By means of this case study, this article highlights methodological inconsistencies among L2 English morpheme studies that inhibit a legitimate comparison. The educational implication is that it is thus more difficult to identify atypicalities in L2 English acquisition to then be able to provide appropriate intervention.

Introduction

Studies show that for L1 English morpheme acquisition order, there is general consensus concerning when learners acquire particular morphemes; however, the same cannot be said for L2 English morpheme acquisition orders. A closer examination of these studies reveals that L1 English researchers employ consistent methodology when measuring acquisition, whereas researchers of L2 English do not necessarily. The review of the literature will divide previous studies into three categories depending on the criteria used to measure morpheme acquisition; the categories will be termed Mastery, Graded and Emergence.

The goal of this article is to consider to what extent methodological inconsistencies contribute to the lack of consensus among L2 English

morpheme acquisition studies. The hypothesis is that certain criteria for measurement are more useful than others and that, as a result, they should receive more credibility in considering morpheme acquisition when making any kind of comparison. After examining model studies that respectively employ the three criteria, the case in point is illustrated in the example of the L2 English acquisition of four Chinese-speaking L1 pre-school boys who are learning English in the United States.

First and Second Language Morpheme Acquisition of English

Studies Based on the Mastery Criteria

A review of morpheme acquisition studies begins with Brown, who set the framework with his 1973 study of the L1 English acquisition of three pre-school aged children he called Adam, Eve and Sarah. Measuring the children's stage of language development by their mean length of utterance (MLU), a figure that is calculated by counting the average length of morphemes the child produces per utterance, Brown (1973) established when children acquired particular morphemes. A child was considered to have acquired a given morpheme when it was present 90% of the time in obligatory contexts in three successive speech samples for each child (Brown 1973). An obligatory context for morphemes is considered the context in which a certain morpheme is required for grammaticality. For the purpose of this article, this methodology established by Brown (1973) will be labeled as "Mastery."

Brown found that the L1 English order of acquisition of morphemes was consistent among unrelated learners. For example, he found that the present progressive and plural morphemes were acquired early, whereas auxiliaries were mastered later. He attributed this constancy to "some factor or some set of factors that cause the grammatical morphemes to develop in a consistent order among the children" (1973: 272). A complete representation of his morpheme findings can be found in Table 1, alongside those of another set of researchers, de Villiers and de Villiers (1973), to be addressed next.

In a study that sought to measure the L1 English morpheme acquisition order among 21 English-speaking children between the ages of 16 and 40 months, de Villiers and de Villiers (1973) found results consistent with those of Brown (1973). Like Brown (1973), de Villiers and de Villiers (1973) also employed the Mastery criteria but used two methods of calculation. In the first, Method 1, the authors first ordered a given morpheme according to the lowest MLU sample at which it was present in 90% of obligatory contexts. In Method 2, the percentages of each morpheme were added across all the subjects and averaged. The resulting mean percentages were then ranked. The morpheme acquisition order

found by de Villiers & de Villiers (1973) using these methods can be understood in comparison to Brown's (1973) in Table 1. The numbers indicate the ranking of a given morpheme in the acquisition order.

Except for the later acquired morphemes, roughly corresponding to morpheme number 10 and higher in Table 1 for Brown (1973), the criteria for acquisition that Brown uses is the Mastery one described above. Morphemes in the later stages did not meet the 90% criteria but rather are ordered as acquired in relation to one another. According to Brown (1973), this ordering likely reflects the ultimate order of acquisition.

Table 1
L1 English Morpheme¹ Orders from Brown (1973)
and de Villiers and de Villiers (1973)

Brown (1973)	de Villiers and de Villiers (1973) by Method 1	de Villiers and de Villiers (1973) by Method 2
1. present	2. present	3. plural
progressive	progressive	4. present
4. plural	2. plural	progressive
5. past irregular	5. past irregular	5. past irregular
6. possessive	6. articles	6. 3rd person
7. uncontractible	7. possessive	irregular
copula	8. 3rd person	7. past regular
8. article	irregular	8. articles
9. past regular	8. contractible	9. contractible
10. 3rd person regular	copula	copula
11. 3rd person	10. past regular	10. uncontractible
irregular	10. 3rd person	copula
12. uncontractible	regular	11. possessive
auxiliary	12. uncontractible	12. 3rd person
13. contractible	copula	regular
copula	13. contractible	13. contractible
14. contractible	auxiliary	auxiliary
auxiliary	14. uncontractible	14. uncontractible
	auxiliary	auxiliary

If we consider that slight variances, perhaps due to factors to be discussed later, do not detract from the general comparability of the findings, Table 1 shows that the orders found by the two studies are consistent, noting that the same system of measurement was employed. Specifically, to note some patterns, for both studies the present progressive and plural are acquired early, while the contractible and

¹ Because the language assessment test I use in my own study does not measure the prepositions *in* and *on*, I do not take into account the emergence of these morphemes in any of the studies reviewed here. The *Instruments* section further elaborates.

uncontractible copula and auxiliary are among the later acquired morphemes. In the middle of the learning pattern among subjects studied, articles and possessives are found to be acquired.

According to Ellis (1994), Brown's (1973) "influential" study suggests a "fixed order" of English morpheme acquisition (77). The results of the de Villiers and de Villiers (1973) study significantly corroborate those of Brown (1973). As evidenced by its frequent inclusion in other studies of morpheme acquisition order, Brown's (1973) ordering is considered the frame of reference for L1 English morpheme acquisition order. It thus seems that general consensus exists about consistent findings for first language English morpheme acquisition order. These can be used to identify atypicalities in the first language development of English speakers.

Turning now to the second language acquisition of English, Hakuta (1976) also used the Mastery criteria in his observation of the L2 English morpheme acquisition of Uguisu, a 5-year-old Japanese girl. During this 60-week longitudinal study, Hakuta tracked the order of Uguisu's acquisition of English morphemes according to the fortnight of data collection during which each morpheme was identified as acquired. This acquisition order is illustrated in Table 4, where it is contrasted with the findings of two other L2-English studies. Like other researchers, Hakuta found the present progressive to appear early, but in his study some morphemes, such as the plural, third person irregular, past irregular and past regular never appeared.

Studies Based on the Graded Criteria

In addition to studies previously reviewed that employed the Mastery criteria for the acquisition of morphemes, other studies employed a measurement system that will be termed "Graded" for the purposes of this article. By this method of calculation, unlike that of Mastery, a graded system is used to note how a morpheme is used; that is, not just whether it is mastered, but rather how often it is used both correctly and incorrectly.

The first of these studies to be reviewed is that of an early L2 English morpheme study by Dulay and Burt (1973). These authors studied the natural speech from 145 Spanish L1 five- to eight-year olds in a cross-sectional study. The authors found similarities in the order of acquisition of morphemes among groups of L2 English learners; however, this order differed from the L1 order as proposed by Brown (1973). For the Graded calculation, the authors took into account and used Brown's (1973) criterion of obligatory contexts. Nevertheless, whereas Brown considered a morpheme acquired if it was present 90% of the time in three consecutive speech samples, what has previously been identified as the Mastery criterion, Dulay and Burt (1973) employed a point system to sort morphemes depending on how they were used. They use the term "func-

tors" to describe the morphemes in question and assigned a value of 0 if no functor was supplied, 0.5 if one was supplied but applied incorrectly, and 1 if a functor was used correctly. Using this system, they calculated whether or not a morpheme was acquired by means of a ratio with the numerator consisting of the sum of the scores obtained for each obligatory context and a denominator containing the total number of obligatory contexts for a functor across all children.

According to Dulay and Burt (1973), the accuracy of how a morpheme is used corresponds to its order of acquisition. That is, they claim that if a given morpheme is used with more accuracy than another then the morpheme with the higher accuracy score is considered to be acquired first. By this method of calculation, morpheme acquisition is presented as a graph of relative accuracy of use, which, when interpreted, reveals the order of morpheme acquisition as shown in Table 2.

Table 2
L2 English Morpheme Acquisition Order Determined by
Dulay and Burt (1973)

1. plural
2. present progressive
3. contractible copula
4. contractible auxiliary
5. article
6. irregular past
7. 3rd person singular
8. possessive

In an attempt to address the issue of establishing universal tendencies for the acquisition of English morphemes among learners of diverse L1s, Bailey, Madden and Krashen (1974) replicated Dulay and Burt's (1973) study but with adults of different L1s, in another cross-sectional study. Like Dulay and Burt (1973), Bailey et al. (1974) used Brown's (1973) same concept of obligatory contexts and assigned a point system, the Graded methodology, to assess how a morpheme was used in performing their calculation. This calculation consisted of dividing the correctly formed and used functors by the obligatory contexts for them.

By using this ratio, Bailey et al. (1974) found that there was a strong degree of correspondence for the accuracies of acquisition of eight morphemes between the Spanish L1 group and the rest of the L2 English language learners with diverse L1s. Furthermore, they also found that the adult order of acquisition of English morphemes did not resemble the order established by previous English L1 studies but rather resembled more the order for child L2 English learners such as that established by Dulay and Burt (1973). Their results for adult learners were charted in

the form of a graph, as were the results of Dulay and Burt (1973). An interpretation of their graph reveals they also found the present progressive to appear early, but in contrast to other researchers, they found the possessive and third person singular to appear later. Their morpheme order findings appear in Table 4 in comparison to the findings of Hakuta (1976) and other L2 English researchers.

As a consequence of these findings, Bailey et al. (1974) assert the existence of two orderings for English morphemes: one for children learning English as a first language and one for children and adults learning English as a second language. In other words, they claim that there is a distinct "natural order" for the acquisition of morphemes among second language learners of English regardless of age or first language background.

Studies Based on the Emergence Criteria

A third set of criteria by which researchers have considered L2 English morphemes acquired is that of "Emergence." According to the Emergence criteria, the presence of a given morpheme in the language of an L2 learner is all that is required to document acquisition.

Cameron and Lee (1999) used this methodology in their study of three Chinese- (Mandarin-) speaking children who were learning English as a second language in an English-speaking environment in Canada. These authors did not consider the concept of obligatory context as defined by Brown (1973). Instead, they differentiated between three stages of acquisition: emergence, learning and mastery. They noted that for their study they considered emergence for the establishment of an L2 English morpheme ordering. If a morpheme was used correctly at least once by the participants in the data collection for a given month, it was marked as present. Otherwise, it was considered absent. They provide no further information about the criteria for the use of a morpheme in question.

This Emergence method of calculation is to be contrasted with the Mastery and Graded techniques previously labeled and described. Table 3 illustrates the month of exposure to English during which particular morphemes emerged among the three subjects.

Inconsistencies

From studying the morpheme orders of the studies reviewed, juxtaposed anew in Table 4, it seems to be the case that although there is consistency found in the ordering of L1 English morpheme acquisition (Table 1), the same cannot be said for that of L2 English morpheme acquisition. Table 4 illustrates three example English morpheme acquisition orders which emerged from of the studies of Cameron and Lee (1999), Hakuta (1976) and Bailey et al. (1974), using the Emergence, Mastery and Graded criteria, respectively. The results found for Cameron and Lee's (1999) "Alex" seem representative of their general findings and thus are

Table 3
Emergence of Morpheme According to Month of English Exposure in
Cameron and Lee (1999)² Subjects

Morpheme	Example	Alex	Bev	Casey
article	a/the	6	6	6
plural regular	-s	6	6	7
possessive	's	7	8	7
present copula	is/am/are	6	6	6
progressive	-ing	7	(did not appear)	6
past tense regular		16	7/17 ³	15
verb plural	play	6	7	6
3 rd person regular	plays	7/18 ⁴	8/17 ⁵	9 ⁶

meant to be illustrative.

To take specific examples of differences, the reader will note that although the possessive occurs in the middle in both Cameron and Lee's (1999) study and Hakuta's (1976), it occurs last in Bailey et al.'s (1974) study. On a similar note, although Bailey et al. (1974) and Hakuta (1976) found the present progressive to be the first morpheme to be acquired, it emerged much later for Cameron and Lee's (1999) subject "Alex".

This lack of agreement between L2 morpheme acquisition studies is particularly noticeable when compared with the consistent results found in L1 morpheme acquisition studies (as shown in Table 1). As was noted in Table 1, the present progressive and plural, for example, were acquired early among the subjects of the L1 researchers Brown (1973) and de Villiers and de Villiers (1973), while the contractible and uncontractible copula and auxiliary are among the later acquired morphemes. Among their subjects, articles and possessive morphemes were found to be acquired in the middle of the learning pattern. Such similarities are not as evident among the L2 research findings represented in Table 4. Given the diversity of methods of calculation reviewed, of which three have been identified in this article, the issue of methodological inconsistency

² Cameron and Lee (1999) do not provide data between months 9 and 14.

³ Morpheme appears in month 7, disappears in months 8-16, appears in month 17, and then disappears again.

⁴ Morpheme appears in month 7, disappears in month 8, appears in month 9, disappears in month 14, appears in month 15, disappears in month 17, and appears again in month 18.

⁵ Morpheme appears at month 8, disappears at month 14, and reappears in month 17.

⁶ Morpheme appears in month 9 and disappears in month 15.

Table 4
Inconsistent L2 English Morpheme Acquisition Orders⁷

Pattern of Cameron and Lee's (1999) "Alex"	Pattern of Hakuta's (1976) "Uguisu"	Pattern of Bailey, et al.'s (1974) findings
1. article	1. present progressive	1. present progressive
1. plural	2. third person irregular	2. contractible copula
1. copula	3. past participle	3. plural
4. possessive	auxiliary <i>was</i>	4. article
4. progressive	4. possessive	5. contractible auxiliary
6. past tense	5. copula	6. past irregular
	6. auxiliaries	7. 3 rd person singular
	7. articles (plural, third person irregular, past irregular and past regular never appeared)	8. possessive

seems an important factor to consider in accounting for resulting differences in morpheme acquisition orders.

Methodological Debates

It is relevant to observe at this point that morpheme researchers usually collect their data either longitudinally, as did Brown (1973), Hakuta (1976) and Cameron and Lee (1999); or at a single point in time, that is, cross-sectionally, as did de Villiers and de Villiers (1973), Dulay and Burt (1973) and Bailey et al. (1974). In the longitudinal method, a few select subjects are followed over long periods of time to observe their changing language development, whereas in cross-sectional studies, researchers only collect data at one particular instance. Various statistical measurements are then employed to determine acquisition.

It is acknowledged, however, that the validity of this latter type of measurement in providing insights into morpheme development is itself uncertain. Rosansky (1976), for example, has observed a lack of correlation between results found longitudinally and cross-sectionally, even among the same subject. In order to circumvent these resulting discrepancies which could be due in part to differences in data collection methods, some researchers including Krashen (1977) propose a L2 morpheme acquisition order based on groupings tendencies. Another approach, Pica's (1983, 1988) target-like use analysis, also offers an impor-

⁷ For ease of comparison, only morphemes that are common to all studies, including the present study, are shown.

tant alternative as it takes into consideration not just the presence of morphemes in obligatory contexts, but also their use in contexts when they are not required.

Despite these discrepancies in L2 morpheme acquisition research, which have been attributed to differences in data collection methods, it is interesting to note that Brown (1973) and de Villiers and de Villiers (1973) found consistent results for L1 English acquisition despite collecting data longitudinally and cross-sectionally respectively. Furthermore, Dulay and Burt (1973) and Bailey et al. (1974) found consistent results as illustrated in Tables 3 and 4 using Graded methodology though collecting data cross-sectionally.

This suggests that, when considering validity of measurement, the method of data collection is not as important as the criteria used to consider acquisition, providing more reason to consider the role of methodological inconsistencies in morpheme acquisition measurement. Rosansky's (1976) findings only underscore the importance of employing consistent methodology to make any conclusions given the questionable validity of cross-sectional data collection.

Hypothesis

The apparent importance of consistent methodology, and therein the superiority of some criteria over others, leads to the present hypothesis: Certain criteria are more helpful than others for measuring morpheme acquisition orders. This hypothesis will be more explicitly tested by measuring the L2 English morpheme acquisition orders of four research subjects considering two of the measurement criteria identified, those of Emergence and Mastery. The findings may illuminate why little consensus has been reached for L2 English morpheme acquisition order, particularly exploring the role of criteria usefulness for methodological consistency.

Methodology

To carry out the investigation, the author elicited speech samples from four boys with Chinese dialects as their native languages who were learning English as a second language. The four boys were enrolled in a child-care center in a Mid-Atlantic state in the U.S. where 56 percent of the students were non-native speakers of English, the majority of whom were Chinese. The language of instruction at the center is English but non-native speakers, including the four subjects, receive supplemental ESL instruction. This support is in the form of special pull-out language sessions with the language coordinator.

It is in this capacity that the author collected her data. Once a week for three months, barring exceptional circumstances, the author conducted two pull-out language sessions with two groups of three learners each,

two of whom in each group were identified as research subjects. These weekly pull-out language sessions constituted the only additional English-language support for the subjects during the week and were supervised by the language coordinator.

Participants

The two groups consisted of three boys each. The first group consisted of boys from the same pre-school class. The second group consisted of boys from the same kindergarten class, this grade being the highest offered by the center. All of the subjects were Head Start eligible. Details about the subjects' age during the study, L1 evaluation and length of exposure to English as determined by their arrival at the child care center are shown in the Table 5. Pseudonyms are used.

Table 5
Background Information for Subjects

Subject	Date of Birth	Age During Study	Age at Enrollment in Child Care Center	Pre-test L1 Evaluation (average score on a scale of 1-5)	Pre-test L1 Language Age Equivalent
Joshua	3/31/1999	4;9 to 5;0	2;6	4	3;11
Damian	4/30/1999	4;9 to 4;12	2;3	4.2	4;11
Adrian	1/23/1998	6;0 to 6;3	4;10	4.3	4;0
Sidney	7/10/1998	5;6 to 5;9	4;0	4.5	4;8

Procedure

During the language sessions, the emphasis was on providing the children with supplemental language input and practice as opposed to providing specific grammar lessons. Activities included reading stories; having the children retell the stories of wordless picture books; playing games with image cards to learn the vocabulary of common objects and verbs; putting together puzzles that provided vocabulary exposure and opportunities to convey sequences of time; playing games; and engaging in coloring activities to focus on prepositional relationships, in particular for the older group. There were also sessions focusing on the he/she distinction in English as these pronouns do not exist in spoken Chinese and were frequently misused by the children.

Instruments

Over the course of the three months, during what amounted to nine data-collection sessions which lasted between 20 and 45 minutes each, the author tape recorded then transcribed the interactions. Each of the subjects was pre-tested by an experienced tester with the Pre-School Language Scale 4 test (PLS4), a test primarily designed to evaluate the L1 English of native-speaking children. This test was selected because it is a widely used standardized test for pre-school children which looks at a broad range of language functions of both auditory comprehension and expressive communication. The test assessed the subjects' language level in terms of that of a native English-speaking child at particular ages. The results of the subject's overall English language abilities at the start of the study in L1 English years are represented in Table 5.

The pre- and post-tests contained one or two questions on each morpheme taken from the PLS4 plus from an earlier version, the PLS3 test. The reader should note that, due to the nature of the PLS4 and PLS3 tests, the morpheme items tested do not correspond exactly to those measured by Brown (1973) and others researchers. Specifically, as the PLS tests did not measure the acquisition of the prepositions in and on, neither did this study. Likewise, as the tests did measure acquisition of the morpheme -er, "one who," this author studied it, even though it was not addressed in the studies reviewed.

Results and Discussion

To determine the L2 English morpheme acquisition order of the subjects, two criteria of measurement were employed to test their usefulness in producing illustrative results. To review, this article has identified three criteria of measurement of English morpheme acquisition order: Mastery, Graded and Emergence. According to the Mastery definition, a child is considered to have acquired a given morpheme when it is present 90% of the time in obligatory contexts in three successive speech samples for each child. The Graded methodology uses a point system to compare the rates of accurate use of various morphemes. In the Emergence criteria, it is simply noted whether or not a given morpheme is present.

For the present study, the two example measurement systems employed were Emergence and Mastery. Each data collection session was considered one speech sample. Assessing the acquisition of morphemes in terms of the two methods, Emergence and Mastery, yielded the results shown in Table 6. Only those morphemes which the subjects had not already acquired, as determined by the pre-test, are included. The numbers indicate the session number (1-9) in which the morpheme was considered acquired.

Using the session number in which a morpheme was considered acquired under each method, as depicted in Table 6, Table 7 juxtaposes

Morpheme	Emergence				Mastery			
	Joshua	Damian	Adrian	Sidney	Joshua	Damian	Adrian	Sidney
plural regular	1	1	1	1				
plural irregular			3		3		6	9
past irregular	1	4	3	1				
possessive						5		5
past regular	5		1	1				
comparative		8	3					8
copula	1	1	1	1				
3 per regular		8	2	1			9	4
3 per irregular		7						
auxiliary	1	4	1	1				
-er "one who"		8						

Table 7
Order of Morpheme Acquisition per Child per Method

Joshua		Adrian	
Emergence	Mastery	Emergence	Mastery
present progressive	present progressive	present progressive	present progressive
1. plural regular	1. plural regular	comparative/superlative	comparative/superlative
1. past irregular		1. plural regular	6. plural regular
1. copula		1. past regular	8. past regular
1. auxiliary		1. copula	9. copula
5. past regular		1. auxiliary	
		2. 3 rd person regular	
		3. plural irregular	
		3. past irregular	
		3. comparative	

Damian		Sidney	
Emergence	Mastery	Emergence	Mastery
present progressive	present progressive	present progressive	present progressive
-er "one who"	-er "one who"	-er "one who"	-er "one who"
1. plural regular	5. past irregular	plural regular	plural regular
1. copula		comparative/superlative	comparative/superlative
4. past irregular		1. plural regular	4. copula
4. auxiliary		1. past regular	5. past irregular
7. 3 rd person irregular		1. past regular	9. plural regular
8. comparative		1. 3 rd person regular	
8. 3 rd person regular		1. copula	
		1. auxiliary	

Note: Morphemes noted as passed in the pre-test are in bold.

the order of morpheme acquisition for each child according to the criteria of Emergence and Mastery.

Paying particular attention to the differences in what is considered acquired by means of Emergence and Mastery among the four subjects in Table 7, it seems significant to note that, though many morphemes are considered acquired if Emergence is the criteria, much fewer can be considered acquired when more stringent standards are employed, such as those used in Mastery. For example, whether or not the plural irregular, past regular and third person regular or irregular shown in Table 7 are acquired among the four subjects seems to depend entirely on the type of measurement criteria used, the difference being the stringency applied to what is considered acquired. That is to say, these morphemes are found to be acquired only by means of the Emergence criteria. This finding, along with several others, supports the case for using the Mastery criteria to measure acquisition over that of Emergence.

According to both methods, for example, regular plurals were established among all the learners at one point or another during the course of the study. Yet the post-test did not reveal universal passing of regular plural test items. To account for this difference, the phenomenon of formulaic speech must be considered. The use of formulaic speech may characterize the language of memorization-dependent learners, an individual difference.

For many of the regular plural morpheme items in the speech of the four subjects, the utterance of the plural morpheme -s may have been due to a formulaic memorization of a chunk, not a competent application of the plural -s morpheme or even an understanding of the morpheme's function. This is a significant possibility because of the prevalence in the speech samples of such likely formulaic plurals as shoes, socks, mittens, and boots. In contrast, less standard noun units, such as those in the post-test which are not normally considered formulaic, are pluralized with less regularity. There is no way of knowing, of course, to what extent a child applied knowledge of a formulaic chunk when uttering a pluralized noun.

It also seems at first glance that the present progressive is established early among the four subjects, as seen by the results of the pre-test. This finding is not unlike those of both the L1 studies (Brown 1973, de Villiers and de Villiers 1973) and many L2 findings, such as those of Cameron and Lee (1999) and Hakuta (1976). Nevertheless it is important to note that among present progressive utterances of the four subjects, during the data collection sessions where complete utterances were noted, the BE + V+ ing construction was not always consistent. Granted, all of the subjects used the V + ing construction even in the pre-test, but when considering the more stringent Mastery assessment, none of the subjects fully acquired the full BE + V + ing construction by consistently mastering the employment of the auxiliary. Yet they evidently understood it, as

the results of the auditory comprehension component of the pre- and post-test revealed, making comprehension another consideration in the establishment of the acquisition of L2 English morpheme orders.

What is especially salient to notice among the data, though, is that by the Emergence criteria no clear order is apparent for most of the learners. As the reader will note from Table 7, only for Damian is there any kind of order for his morphemes under Emergence. This finding undermines the very usefulness of Emergence as a set of measurement criteria and thus, of this methodology being capable to produce a meaningful morpheme acquisition order. In contrast, by the Mastery criteria, there is at least more of a sequence, particularly in the case of Sidney. These findings, along with the previously mentioned problem of Emergence more liberally allowing a morpheme to be considered acquired, put into question the dependability of Emergence as a criterion.

Having established that the Emergence criteria, at least, are of questionable utility, the next question that emerges is to what extent other measurement systems can be relied upon to produce helpful results, thus possibly accounting for inconsistencies in L2 morpheme acquisition orders. It seems that more of an argument can be made for employing the Mastery technique, as already discussed. Yet it still remains the case that if different researchers employ different measurement criteria, regardless of what they are but especially if they are not useful, it would be difficult to establish a consensus for morpheme acquisition order.

Table 8 juxtaposes the morpheme order results from previous studies, already showing as differing in Table 4, alongside the development of the example subject "Sidney" from Table 7. By providing for a more legitimate comparison of the order of acquisition of morphemes, Table 8 shows that there is little concurrence among these studies of L2 morpheme acquisition orders.

To elaborate, consider that among Cameron and Lee's (1999) findings for "Alex," plural appears early while past tense, though it appears late, at least appears. However, for Hakuta's (1976) subject, plural and past tense never appear. Furthermore, among both Cameron and Lee's (1999) subject and Hakuta's (1976), possessive is among one of the middle morphemes to appear during the courses of their studies. Yet Table 7 shows that, among the four subjects studied here, possessive never appears, regardless of the form of measurement employed.

Conclusion

Given the questionable helpfulness of Emergence as a measurement criterion, as well as the discrepancies in the orders found by this study and previous ones, there seems to be sufficient evidence to support the hypothesis that certain criteria for measurement are more useful than others and that as a result, they should receive more credibility in con-

Table 8
Comparison of L2 English Morpheme Acquisition Orders of Three Researchers

"Alex" Cameron and Lee (1999)	"Sidney" Emergence	"Sidney" Mastery	"Uguisu" Hakuta (1976)
1. article 1. plural 1. copula 4. possessive 4. progressive 6. past tense	present progressive -er "one who" plural regular comparative/superlative 1. plural regular 1. past irregular 1. past regular / 1. 3 rd person regular 1. copula 1. auxiliary	present progressive -er "one who" plural regular comparative/superlative 1. copula 2. past irregular 3. plural regular	1. present progressive 2. 3 rd person irregular 3. past participle auxiliary was 4. possessive 5. copula 6. auxiliaries 7. articles (plural, 3 rd person irregular, past irregular and past regular never appeared)

sidering morpheme acquisition order. This finding may shed light on why little consensus has been reached for L2 English morpheme acquisition order.

There could, of course, be other considerations to explain the inconsistencies found. These include individual differences such as learning styles, alluded to above, and cross-linguistic transfer. As Ellis (1996) notes, research into individual differences reveals an abundance of factors whose interrelatedness is still under investigation. What is clear, however, is that learners differ vastly in aspects of their personality and cognitive processing as well as in the effect of external factors that affect their acquisition of a second language.

Of particular interest to this study is the effect of the learning style difference of aptitude that determines whether or not a child learns by analysis or memorization, as identified by Skehan (1989). According to Skehan (1989) analytic learners are more inclined to use inductive skills, whereas "chunk learners" are more likely to depend on memorization. This contrast can be understood in that, in the initial stages of language learning, learners highly dependent on memorization may store utterances as unanalyzable units, much in the same way formulaic speech is employed. Inductive learners may separate and analyze these chunks in their component parts to combine them creatively.

To some extent, the tendency of every learner to both "chunk" and analyze is consistent with the U-shaped pattern of development, described by Ellis (1994). In this phenomenon, a learner may initially use a form correctly then appear to regress by misusing the form before mastering the target form, leading to a U-shape when use of the form is graphed. This kind of development may be explained by an initial formulaic memorization of a chunk followed by overgeneralization of rule exceptions finally leading to mastery of the form in all its component parts.

As was noted in the previous section, the prevalence of correct production of the plural morpheme -s in some speech samples during the sessions may have been more likely attributed to a formulaic memorization of a chunk, not competence with the function of the plural -s morpheme, since less standard noun units that appeared in the post-test were pluralized with less regularity.

Ji (1997) also points out the effect of individual differences in considering that different learners may process information differently. Specifically, Ji relates the effect of information processing on comprehension which affects how fast a learner can analyze and memorize input (1997). However, whereas Ji places more primary importance on these information processing differences, Ellis's (1994) assertion that individual differences can best be understood on a graded scale seems more acceptable and better takes into account the interrelatedness of a range of factors, among which are personality and learning circumstances as well

as cognitive processing.

As for cross-linguistic influence, the present day consensus about this phenomenon in L2 acquisition, according to Benson (2002), is that it exists, but is neither considered the only effect nor a necessary one. It is understood in several capacities: it can be positive (facilitative) or negative (leading to errors) depending on whether structures exist in both languages or not. Such differences, though, can even have inconclusive effects depending on whether a feature in the L1 is absent or also present in the L2 creating saliency which does not always facilitate predictable acquisition. According to Benson (2002), this effect can either delay or accelerate rates of development; transfer can occur at all levels of language including phonological and syntactic, for example. Morphology seems to be affected, she says, but to a lesser extent than other aspects of language.

Another element to be taken into account is the length of the data collection period for this study. This author only had a limited time period of three months for her study. Brown studied his subjects for at least a year, while both Hakuta (1976) and Cameron and Lee (1999) were able to collect data for more than a year. The continued observation by this author of the subjects over the course of a longer period of time would have provided more data, which may or may not have disputed the conclusions found. Observation of the subjects from their first exposure to English also would have allowed the author to better determine the order in which the English morphemes emerged.

What seems more significant in explaining the inconsistencies in the findings of L2 morpheme researchers, though, is the lack of methodological consistency in the measurement of morpheme acquisition, particularly taking into account the usefulness of the measurement system employed. The general findings indicate that Emergence is not illustrative in measuring acquisition. As a result, there is even more reason to question methodology.

Regardless of any effect of other factors such as learning differences, it is essential to employ the same method of calculation to talk about L2 English morphological orders. Only once a frame of reference for general tendencies in L2 morpheme acquisition order is established by consistent means can any value come from having a basis for comparison among learners.

Of course, one may wonder why to even expect at all the existence of a fixed order for L2 English morpheme acquisition. This is a valid question, but one that cannot be further explored until consistent methods of measurement are utilized, morpheme acquisition, of course, being only one aspect of second language acquisition.

Nevertheless, a consistent body of research on morpheme acquisition order is worthwhile because of the benefit that could come from having a basis on which to compare learners. This basis could prove important

for designing interventions for learners who display atypicalities. It is thanks to frames of reference already established for L1 English morpheme acquisition that educators can identify atypicalities in the first language acquisition of English-speaking children to then provide development support. To provide the same assistance for second language learners, that is, to be able to provide the intervention necessary to facilitate the L2 acquisition of English, it is first necessary to know what the basis of comparison is, if there is one. This can only be achieved by establishing consistent methods for measuring L2 English morpheme acquisition by useful measurement techniques.

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